Module title			Abbreviation
Modelling and Computational Science			10-M-MWR-122-m01
Module coordinator		**Module offered by**	
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.	

Contents

Aspects of mathematical modelling of technical or scientific processes. Basic principles of modelling, aspects of scaling the modelling, asymptotic series, classical methods for solving ordinary and partial differential equations, fundamental methods for numerical solution of partial differential equations and the resulting systems of linear equations.

Intended learning outcomes

The student masters the fundamental mathematical methods and techniques to simulate processes from natural and engineering sciences on a computer.

Courses (type, number of weekly contact hours, language — if other than German)

V + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 90 to 180 minutes)
if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)
Language of assessment: German, English if agreed upon with the examiner

Allocation of places

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Additional information

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Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Nanostructure Technology (2012)
Bachelor's degree (1 major) Mathematical Physics (2012)
Bachelor's degree (1 major) Computational Mathematics (2012)

Bachelor's degree (1 major) Computational Mathematics (2013)